

## ABSTRACT OF THE DISCLOSURE

A method for in-season macro and micronutrient application based on predicted yield potential, coefficient of variation, and a nutrient response index. The inventive method includes the steps of: determining a nutrient response index for a field; determining the normalized difference vegetation index (NDVI) of an area to fertilize; determining the coefficient of variation of NDVI over a plot; determining a predicted crop yield for the area without additional nutrient; determining an attainable crop yield for the area with additional nutrient; determining the nutrient requirement for the area as the difference between the nutrient removal at the attainable yield minus the nutrient removal at the predicted yield, adjusted by the efficiency of nutrient utilization in the particular crop as indicated by the coefficient of variation.

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